

Title: **Synthesis of Dy-carboxylate 1-D and 2-D complexes**

Student: Jonay González Sánchez

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Supervisor/s: Dra. E. Carolina Sañudo Zotes
Department of Inorganic and Organic Chemistry

Since the discovery in the 1990s that a molecule can retain a magnetization at temperatures of the liquid helium, there has been a great interest from scientists to improve the performance of this type of molecules, known as Single-Molecule Magnets, and their ability to retain the magnetization even at higher temperatures.

The aim of this work is to synthesize complexes with the unit $[\text{MDy}_2(\text{RCOO})_2(\text{R}'\text{COO})_2]$, that has been proven to have interesting magnetic properties and can act as a SMM, into systems with different dimensions such as 0-D, 1-D or 2-D to study how the changes in the shape of the molecule can affect to its magnetic properties and the way the molecule relaxes.

We have used different carboxylates with different lengths of their R group and different pyridine-derivatives to see how these differences affect to the distance between units and therefore producing changes in their magnetic behavior.

Keywords: Single-molecule magnets, Dy-carboxylate, 1-D polymer, 2-D polymer, magnetic properties.